

Graphing Lines

STANDARD FORM Graph the equation. Label any intercepts.

31. $x + 4y = 8$

32. $2x - 6y = -12$

33. $x = 4$

34. $y = -2$

14. $y = \frac{2}{3}x - 2$

GRAPHING INEQUALITIES Graph the inequality in a coordinate plane.

7. $x < 3$

8. $x \geq 6$

9. $y > -2$

10. $-2y \leq 8$

11. $y \leq -2x - 1$

12. $y < 3x + 3$

Random Goodies!!

CLASSIFYING LINES Tell whether the lines are *parallel*, *perpendicular*, or *neither*.

18. Line 1: through $(3, -1)$ and $(6, -4)$
Line 2: through $(-4, 5)$ and $(-2, 7)$

19. Line 1: through $(1, 5)$ and $(3, -2)$
Line 2: through $(-3, 2)$ and $(4, 0)$

AVERAGE RATE OF CHANGE Find the average rate of change in y relative to x for the ordered pairs. Include units of measure in your answer.

24. $(2, 12), (5, 30)$ x is measured in hours and y is measured in dollars

25. $(0, 11), (3, 50)$ x is measured in gallons and y is measured in miles

26. $(3, 10), (5, 18)$ x is measured in seconds and y is measured in feet

WRITING AND GRAPHING Write and graph a direct variation equation that has the given ordered pair as a solution.

4. $(-3, 12)$

5. $(6, -21)$

GRAPHING CALCULATOR In Exercises 19 and 20, use a graphing calculator to find and graph an equation of the best-fitting line.

19.

x	78	74	68	76	80	84	50	76	55	93
y	5.1	5.0	4.6	4.9	5.3	5.5	3.7	5.0	3.9	5.8

Writing Equations of Lines

PARALLEL AND PERPENDICULAR LINES Write an equation of the line that passes through the given point and satisfies the given condition.

20. $(-3, -5)$; parallel to $y = -4x + 1$

21. $(7, 1)$; parallel to $y = -x + 3$

23. $(4, 1)$; perpendicular to $y = \frac{1}{3}x + 3$

WRITING EQUATIONS Write an equation of the line that passes through the given points.

30. $(-1, 3), (2, 9)$

31. $(4, -1), (6, -7)$

32. $(-2, -3), (2, -1)$

Write the equation of the function with the given table.

x	-2	2	6	10	14
$f(x)$	-11	-3	5	13	21

Application Problems!!

One beautiful, December day in Denver, CO, the snow began to fall. After 4 hours of snowfall, the snow depth was 8 inches. After 6 hours of snowfall, the snow depth was 9.5 inches.

- a) Write the given function between time and snow depth as a **table** below.
- b) Use the table to write an **equation** that represents the function.
- c) What is the meaning of the **slope** in this equation?
- d) How much snow will be on the ground after 10 hours of snow fall?

27.  **MULTIPLE REPRESENTATIONS** The table shows the numbers of countries that participated in the Winter Olympics from 1980 to 2002.

Year	1980	1984	1988	1992	1994	1998	2002
Countries	37	49	57	64	67	72	77

- a. **Making a List** Use the table to make a list of data pairs (x, y) where x represents years since 1980 and y represents the number of countries.
- b. **Drawing a Graph** Draw a scatter plot of the data pairs from part (a).
- c. **Writing an Equation** Write an equation that approximates the best-fitting line, and use it to predict the number of participating countries in 2014.
- d. Explain the meaning of the **slope** in this problem!!!!

60. **CAMPING** Your annual membership fee to a nature society lets you camp at several campgrounds. Your total annual cost y (in dollars) to use the campgrounds is given by $y = 5x + 35$ where x is the number of nights you camp. Graph the equation. What do the slope and y -intercept represent?

39. **WEATHER** Hail 0.5 inch deep and weighing 1800 pounds covers a roof. The hail's weight w varies directly with its depth d . Write an equation that relates d and w . Then predict the weight on the roof of hail that is 1.75 inches deep.

Absolute Value Functions

For each given function complete the following:

- *Label and graph the parent function*
- *Describe the horizontal shift of the child function*
- *Describe the vertical shift of the child function*
- *Describe the vertical stretch of the child function*
- *Using interval notation, give the domain & range of the child function*
- *Graph the child function*

3. $y = |x| - 7$

4. $y = |x + 2|$

5. $y = |x + 4| - 2$

11. $y = 2|x + 1| - 6$